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MEMORANDUM FOR: (See Distribution List)

FROM:

[REDACTED]  
Chief, Strategic Resources Division  
Office of Global Issues

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SUBJECT:

Soviet Grain Crop Conditions [REDACTED]

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1. The attached memorandum is the first in a series of assessments analyzing crop conditions in the Soviet Union. Additional memoranda will be issued periodically during the remainder of the crop season especially if crop prospects change markedly. [REDACTED]

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2. This assessment was produced by [REDACTED]

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[REDACTED] the Agricultural Assessments Branch, Strategic Resources Division, Office of Global Issues. [REDACTED]

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3. Comments and questions are welcome and may be addressed to the Chief, AAB [REDACTED]

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Attachment:

USSR: Favorable Grain Prospects [REDACTED]  
GI M 86-20150, June 1986 [REDACTED]

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[REDACTED]

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SUBJECT: Soviet Grain Crop Conditions [REDACTED]

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OGI/SRD/AAB, [REDACTED] (25 June 1986)

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Central Intelligence Agency



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## DIRECTORATE OF INTELLIGENCE

25 JUN 1986

USSR: Favorable Grain ProspectsSummary

Crop conditions in the USSR as of mid-June are mostly favorable. With normal weather through July, we expect the winter grain crop--roughly one third of total Soviet grain output--to reach about 60 million tons. A winter crop of this size would be higher than the 57 million-ton average of the last five years and about the same as last year's estimated output of 61 million tons. The outlook for spring grains is also generally good. It is still too early to estimate final spring grain production, however, because weather conditions over the next two months will largely determine yields. Nonetheless, with ideal weather for the remainder of the crop season, we believe that a harvest of some 205 million tons still can be achieved. The major limiting factors are crop damage already sustained in the Volga Valley and southwestern Ukraine and the smallest sown area in 15 years--estimated at 118.5 million hectares. On the downside, unusually poor weather could yet cause total production to fall well below the estimated 184-million-ton average for the 1981-85 period. [redacted]

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This memorandum was prepared by [redacted]

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[redacted] the  
Agricultural Assessments Branch, Strategic Resources Division,  
Office of Global Issues. Comments and questions may be directed  
to [redacted] Chief, Strategic Resources Division [redacted]

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GI M 86-20150

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USSR: Favorable Grain Prospects

Following an improved harvest last year--estimated at 195 million tons compared with 180 million tons in 1984--prospects for the 1986 Soviet grain crop as of mid-June are equally favorable. Spring sowing occurred on schedule, according to data released in early June by the USSR Central Statistical Administration (Figure 1). Meteorological data and satellite imagery indicate that serious crop damage from hot, dry weather during May and early June was confined to the Volga Valley, parts of the North Caucasus, the eastern Black Earth and southwestern Ukraine--areas which produce less than 10 percent of the annual Soviet grain harvest (Figure 2). [REDACTED]

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Grain Crop Developments

**Winter Grain Crop.** Analysis of crop conditions to date indicates that the Soviet Union is headed for a winter grain harvest of about 60 million tons. A crop of this size would be greater than the 1981-85 average of 57 million tons but slightly below last year's estimated output of 61 million tons (Table 1). Winter grains--sown in the European USSR in the fall for harvest the following summer--generally account for about a third of total Soviet grain production. [REDACTED]

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Our estimate takes into account several factors:

- o The area sown to winter grains last fall--32.8 million hectares--is down from the previous year's 35 million hectares.
- o Winterkill was probably about average, necessitating re-seeding of 15-18 percent of planted winter grain area.
- o Timely spring rains benefited crop development in most areas, generally offsetting the smaller sown area.
- o Crop vigor--as viewed on recent Landsat [REDACTED] [REDACTED]--is good to very good in the majority of the winter grains region.
- o Application of intensive technology--the program designed to boost grain production--expanded to 14.6 million hectares of winter grains compared with about 6 million hectares in the previous year. [REDACTED]

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<sup>1</sup> Intensive technology includes the use of high yield crop varieties, planting after fallow, efficient transportation scheduling, and appropriate use of fertilizers and pesticides. [REDACTED]

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Despite the generally positive outlook, not all areas of the Soviet Union have been problem-free. In the RSFSR, meteorological data indicated that below normal April precipitation over the Volga Valley continued in May and spread to parts of the North Caucasus and eastern Black Earth. This was corroborated by May Landsat imagery which showed serious moisture stress and poor crop emergence in the lower Volga region, especially in Volgograd and parts of Saratov. Crops in the North Caucasus (Rostov and Stavropol), northern Volga, Volga-Vyatka and parts of the Black Earth showed moderate-to-severe moisture stress. Prolonged dryness also occurred in the Ukrainian oblasts of Odessa and Nikolayev and in the Moldavian SSR. [REDACTED]

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Since early June, high pressure has dominated the European USSR, resulting in continued dryness and cool temperatures in the north and seasonal temperatures in the south. Because dryness persisted in the lower Volga Valley and North Caucasus when most plants were in or near the critical flowering stage, winter grain yields for this area--particularly Volgograd, Stavropol and eastern Rostov--are expected to fall well below average.<sup>2</sup> In contrast, precipitation in Volga-Vyatka and in the upper half of the Volga Valley likely prevented losses of grain just entering the flowering stage. While recent scattered precipitation in the southwestern Ukraine helped ease crop stress, some damage was sustained. Dryness has now also set in along the eastern Ukrainian oblasts of Voloshilovgrad and Donetsk. [REDACTED]

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Although the bulk of the winter grains crop has passed the most critical growth stage, future weather conditions still can have a major effect on the harvest outcome. Should the situation improve quickly with excellent weather conditions prevailing over the next month or so in the currently affected regions--a possible but unlikely turn of events--a 64 million-ton harvest is still within range. On the other hand, a 60 million-ton harvest is by no means assured. If during the current ripening stage dryness persist in the lower Volga, North Caucasus and eastern Ukraine, grain kernels will shrivel and yields will fall. Moreover, excessive rainfall during the harvest could seriously impede combining operations, resulting in sizeable losses both in grain quantity and quality. Under these circumstances, winter grain output could easily fall to 55 million tons. [REDACTED]

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<sup>2</sup> Flowering is the stage of grain development when the plant is most vulnerable to heat or moisture stresses which can cause irreversible yield losses. [REDACTED]

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[redacted]

**Spring Grains.** Early season prospects for the Soviet spring grain crop are bright.<sup>3</sup> Ample May precipitation in the Newlands provided excellent soil moisture conditions in all regions, except for marginal grain-growing areas of western Kazakhstan and the eastern Volga Valley. Wet, cool weather in north-central Kazakhstan and the northern and western oblasts of West Siberia, however, may have caused some sowing delays. Since early June near-normal precipitation has continued throughout the Newlands. Persistent cool temperatures, however, threaten to set back crop development and increase the chances of harvest delays this fall. If temperatures, warm during the coming weeks, above normal or record yields could result in most areas of the Newlands. [redacted]

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### Impact of Chernobyl

The Chernobyl incident is expected to have a negligible impact on Soviet crop production for several reasons:

- o The quarantined zone--within roughly 30 kilometers of the stricken plant--is miniscule compared to the overall area of Soviet crop production.
- o Very little grain is raised within the affected zone, which is mostly forest and grassland.
- o According to Soviet press reports and satellite imagery, planting of spring crops continued right up to the periphery of the quarantine zone.
- o Slightly contaminated grain from outside the evacuated zone can be mixed with clean grain during milling to dilute any harmful effects. [redacted]

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The chief threat to date has been contaminated field dust raised by farm machinery during planting, spraying and cultivation. According to Soviet press reports thorough monitoring of field workers and equipment continues and authorities have called for improved cab seals on tractors to keep out dust. In addition, wash-downs of machinery have become much more frequent. [redacted]

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### Looking Ahead

With about four months remaining in the crop season, it is too early to estimate final 1986 Soviet grain production. Weather conditions will yet play a pivotal role in determining spring grain yields. In addition, it is difficult at this stage

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<sup>3</sup> Spring grains are sown in April and May for harvest in late summer and fall. [redacted]

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to gauge the benefits to be realized from wider application this year of intensive technology. Last year's production increase attributed to intensive technology--16 million tons on 17 million hectares according to agricultural officials--probably failed to deduct for concurrent production declines in areas from which resources were pulled. Thus, we estimate the net gain in output was only about 5 million tons. With the Soviets expanding the use of intensive technology to 31 million hectares (primarily in the RSFSR, the Ukraine, and Kazakhstan) or more than one-fourth their total grain area, the net addition to output could reach 10 million tons this year. Much will depend, however, on weather conditions during the remainder of the growing season since high yield seeds and fertilizers are greatly dependent on adequate moisture for their response. [redacted]

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The favorable early season prospects for both winter and spring grains could mean--given ideal conditions for the remainder of the crop season--a total grain crop in the neighborhood of 205 million tons. A crop significantly higher than this seems unlikely because of a small sown area and the damage already accrued by the winter grains. When Soviet farmers achieved their record grain harvest of 237 million tons in 1978, winter grains output exceeded 85 million tons--25 million tons higher than our current estimate. Similarly, data released by the USSR's Central Statistical Administration in early June indicate that the downward trend in total grain hectareage begun in the late 1970s is continuing (Table 2). Based on this data, we believe that this year's sown grain area will be only about 118.5 million hectares, the lowest in fifteen years and 8 percent less than 1978.<sup>4</sup> Assuming average yields, such a decrease in hectareage results in the loss of about 15 million tons of potential grain production. [redacted]

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On the downside, should the weather deteriorate markedly, especially in the major spring grain regions of the Volga Valley, the Urals, Kazakhstan, and West Siberia, the 1986 Soviet grain crop could come in well below the estimated 184 million-ton average for 1981-85. Most damaging would be a shift to hot, dry weather during the flowering period. [redacted]

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<sup>4</sup> The cutback in grain area appears to be a consequence of Moscow's policy to expand the amount of arable land put into fallow. Between 1977 and 1985, the harvested grain area of the USSR declined steadily from a record high of 130.3 million hectares to 118.0 million, while fallow increased from 11.7 million hectares to 21.3 million. Although fallowing sacrifices production in the year in which the land is idled, it usually results in higher, more stable yields in subsequent years as long as the fallowed hectareage is maintained in the crop rotation schedule and abnormally dry weather does not preclude the buildup of moisture reserves in the soil. [redacted]

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Figure 1

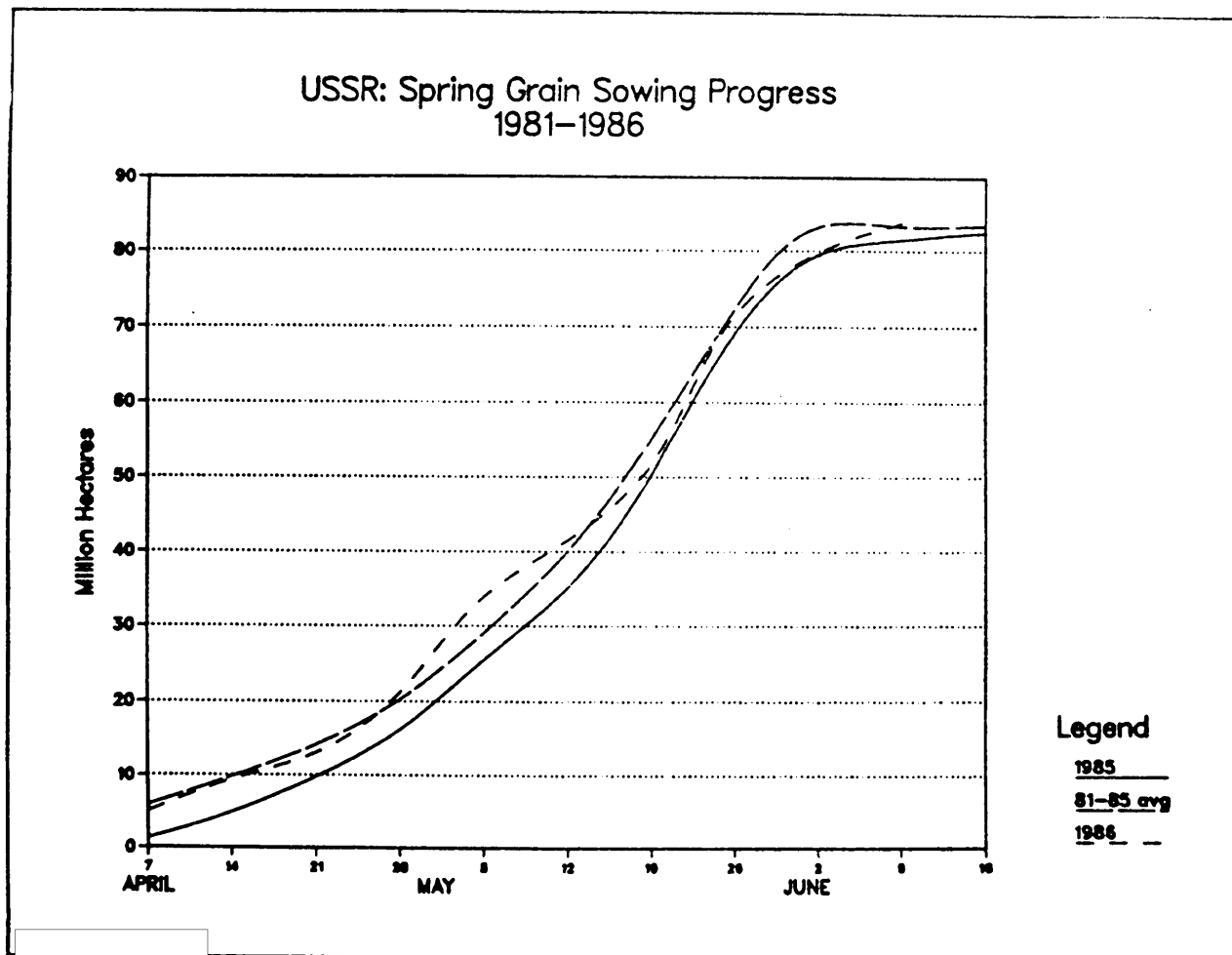






Table 1

USSR Winter Grains<sup>a</sup>

	1976-80 Average	1981	1982	1983	1984	1985	1986
Area							
Sown (million hectares)	36.1	34.0	35.5	32.5 <sup>c</sup>	34.5 <sup>c</sup>	35.0	32.8
Harvested (million hectares)	29.6	29.3	31.9	28.7	28.9	31.0 <sup>c</sup>	27.6 <sup>c</sup>
Winterkill <sup>b</sup> (percent of area)	18.0	13.8	10.1	11.7	16.2 <sup>c</sup>	11.4 <sup>c</sup>	16.0 <sup>c</sup>
Production (million tons)	64.5	55.0 <sup>c</sup>	55.0 <sup>c</sup>	55.0 <sup>c</sup>	60.0 <sup>c</sup>	61.0 <sup>c</sup>	60.0 <sup>c</sup>
Yield (centners per hectare)	21.8	18.8 <sup>c</sup>	17.2 <sup>c</sup>	19.2 <sup>c</sup>	20.8 <sup>c</sup>	19.7	21.7 <sup>c</sup>

<sup>a</sup> Winter wheat, rye, barley.

<sup>b</sup> Percentage difference between sown and harvested area. Includes some acreage used for forage.

<sup>c</sup> Estimated.

Table 2

## USSR: Selected Grain Statistics

	PRODUCTION (Million Tons)	AREA (Million Hectares)	YIELD (Centners Per Hectare)
1976	223.8	127.8	17.5
1977	195.7	130.3	15.0
1978	237.4	128.5	18.5
1979	179.2	126.4	14.2
1980	189.1	126.6	14.9
1981	158.0 <sup>a</sup>	125.6	12.6 <sup>c</sup>
1982	180.0 <sup>b</sup>	123.0	14.6 <sup>c</sup>
1983	195.0 <sup>b</sup>	120.8	16.1 <sup>c</sup>
1984	180.0 <sup>b</sup>	119.6	15.0 <sup>c</sup>
1985	196.0 <sup>b</sup>	118.0	16.6 <sup>c</sup>

<sup>a</sup> Unofficial.

<sup>b</sup> Estimated.

<sup>c</sup> Implied.